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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/259,344	02/15/99	KIMSAL C	16466

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JOHN F KLOS
LARKIN HOFFMAN DALY & LINDGREN LTD
1500 NORWEST CENTER
7900 XERXES AVENUE SOUTH
BLOOMINGTON MN 55431-3333

EXAMINER	
NGUYEN, M	
ART UNIT	**PAPER NUMBER**
2816	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/039,344	Applicant(s) Kimsal et al.
	Examiner Minh Nguyen	Group Art Unit 2816

☒ Responsive to communication(s) filed on *Mar 13, 1998* .

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-21* is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1, 2, and 4-21* is/are rejected.

☒ Claim(s) *3* is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☒ The drawing(s) filed on *Mar 13, 1998* is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____ .

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "constant current network" recited on line 6 of claim 1, the "third input" and "fourth input" recited in claim 20 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Specification

3. The disclosure is objected to because of the following informalities:

Descriptions of Fig. 3a, Fig. 3b, Fig. 3c, Fig. 4 are not seen in Brief Description Section.

On page 5, line 18, the recited "hold capacitors 58" is not seen in Fig. 1.

On page 6, line 10, the recited "circuitry 10" is not seen in Fig. 1.

On page 8, line 3, the recited "hold capacitors 58" is not consistent with the recitation of "hold capacitor 58" on line 5.

On page 8, line 22, nodes 16, 18 are not seen in any Figure.

On page 10, line 12, transistors 66, 68, and capacitors 70-96 are not seen in any Figure.

On page 11, line 11, resistors 102-110 and capacitors 112, 114 are not seen in any Figure.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 9, the recited "first node" on line 9 lacks clear antecedent basis because it is not clear if this node is the same as the "first node" recited on line 7. The same problem exists for the recitation of a "second node" on lines 7 and 9.

As per claim 16, the recited "first node" on line 9 lacks clear antecedent basis because it is not clear if this node is the same as the "first node" recited on line 7. The same problem exists for

the recitation of a "second node" on lines 7 and 9. Also, according to the specification, the current steering element includes the "transistor switch" which is recited on line 16, therefore, the recited "transistor switch" appears to be redundant and should therefore be deleted.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

Claims 1, 2, 4, 5, 8, 9, 11, 12, 14-17, 20 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Colli et al. (U.S. Patent No. 5,825,218).

As per claims 1, 5, 12 and 20, Colli et al. discloses a linear ramp generating circuit (Fig. 5) comprising: an output node Vout, a first input node (input to switch Sw2) coupled to a first input signal COM; a second input node (inpút to switch Swl) coupled to a second input signal (the inverted COM signal); a constant current source network (current sources 22 and 24); a capacitor C which has a first node coupled to ground, a second node coupled to Vout; a return charge network (transistors Q1a, Q1b, Q2a and Q2b, i.e., current source 20, comparator 28, FETs M1, M2 and M3); a first switch means Sw2 responsive to the first input signal COM to discharge (switch Sw2 is opened) the capacitor C through the current source 22 and uncoupling (switch

Sw2 is closed) the second node of the capacitor from the constant current source network; and a second switch means Sw1 responsive to the second input signal to charge the capacitor C through current source 20.

As per claim 2, the return charge network charges the capacitor through current source 20 when switch Sw1 is closed.

As per claims 4, 15 and 21, the recited "FET pair" is seen as M1 and M2 and "op-amp" is seen as comparator 28.

As per claims 8, 14 and 17, the return charge network is seen as active feedback circuit because it includes active components, i.e., bipolar transistors and FETs, the op-amp is seen as comparator 28, and the impedance feedback network is seen as the dynamic resistances of FETs M1, M2 and M3.

As per claim 9, the first node of the recharge network is the node which is created by the intersection of the collector terminal of transistor Q4a and the second node of the capacitor, and the second node of the recharge network is at the collector of transistor Q1b.

As per claim 11, the current source 22 is the current sink for the capacitor C because it provides the discharge path for the capacitor.

As per claim 16, the current steering element is seen as switches Sw1 and Sw2.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colli et al.

Colli et al. does not disclose that the constant current source is implemented using an op-amp. However, it is old and well-known in the art that constant current source can be implemented using an op-amp, of which fact official notice is taken. Moreover, an op-amp and op-amp circuit is well-known in electronic circuits for its high input impedance and low output impedance characteristics. It would have been obvious to one skilled in the art at the time of the invention to implement the constant current source of Colli et al using an op-amp so that the constant current source can be easily adapted to the rest of the ramp generator circuit due to its high input impedance and low output impedance characteristics.

7. Claims 7, 13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colli et al. in view of Diller.

Colli et al. discloses the use of the first Sw2 and second Sw1 switches to control the time to discharge and recharge the capacitor via the input signals. Not disclosed is that the first and second switches are implemented using differential paired transistors. Diller discloses first and

second switches in a ramp generating circuit (Fig. 1) which can be implemented using differential paired transistors. It would have been obvious to one skilled in the art at the time of the invention to implement the first and second switches in Colli et al. circuit using differential paired transistors as taught by Diller because the switches which are implemented using differential paired transistors have the well-known advantage that both transistors will not both ON at the same time when receiving an input signal and its inversion to its input terminals of the differential pair.

Allowable Subject Matter

8. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 10 and 18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 3 and 10 are allowable because the prior art of record fails to disclose or suggest a linear ramp generating circuit which includes an active feedback circuit in the return charge network.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Nguyen whose telephone number is (703) 306-9179. The examiner can normally be reached on Monday-Thursday from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan, can be reached on (703)308-4876. The fax phone number for this Art Unit is (703)308-7722. Please note, any faxed paper clearly stating DRAFT or PROPOSED AMENDMENT at the top will be forwarded directly to the examiner. All others will be treated as a formal response and acted upon accordingly.

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March 8, 1999

TIMOTHY P. CALLAHAN
SUPERVISORY PATENT EXAMINER
GROUP 2500